FluWatch

Public Health Agency of Canada | Agence de la santé publique du Canada

November 2 to 8, 2014 (week 45)

Overall Summary

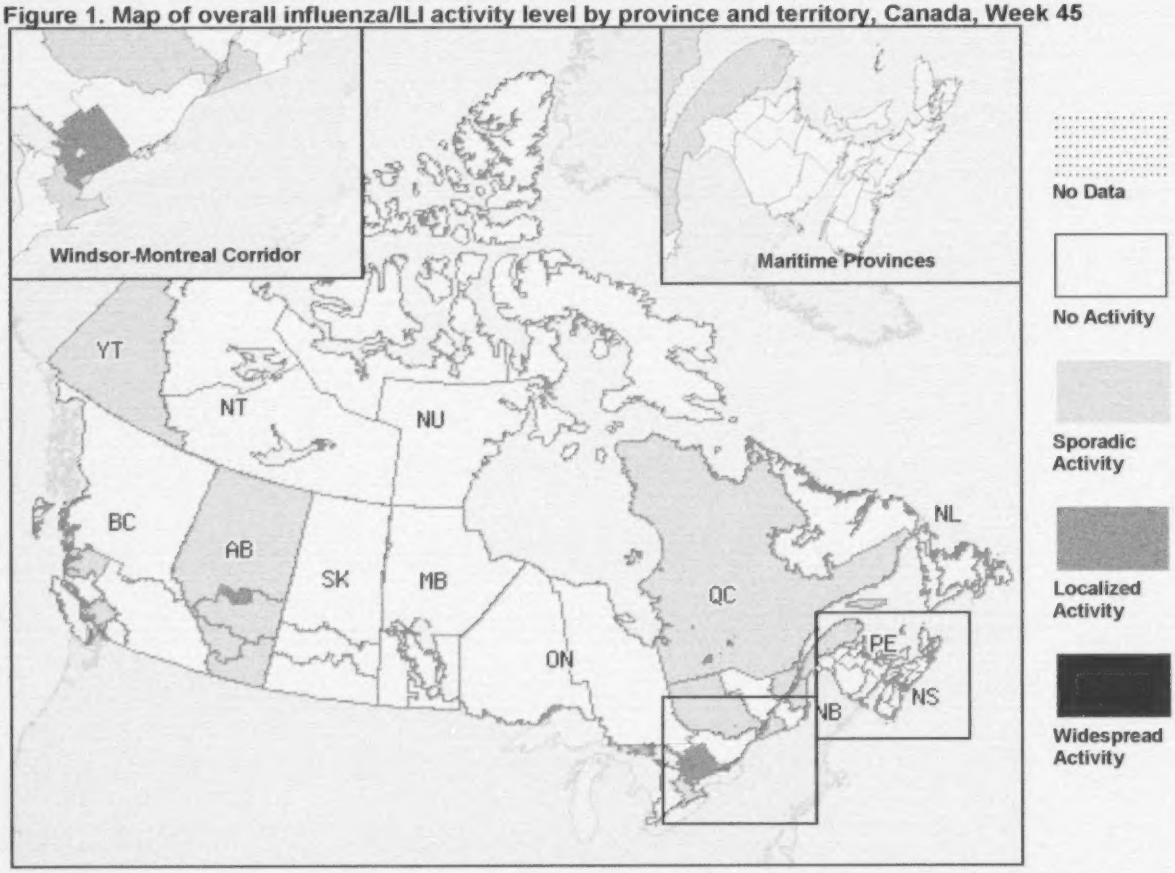
- As expected, overall influenza activity in week 45 increased from the previous week. Yukon reported activity for the first time this season but only at sporadic levels.
- A(H3N2) continues to be the most common type of influenza affecting Canadians.
- To date, 40-55% of influenza laboratory detections and hospitalizations have been in seniors ≥65 years of age.

Are you a primary health care practitioner (General Practitioner, Nurse Practitioner or Registered Nurse) interested in becoming a FluWatch sentinel for the 2014-15 influenza season?
Contact us at FluWatch@phac-aspc.gc.ca

Influenza/ILI Activity (geographic spread)

In week 45, two regions (in AB(1) and ON(1)) reported localized activity and 13 regions (BC(1), AB(4), ON(2), QC(5) and YT(1)) reported sporadic activity (Figure 1).

Figure 1. Map of overall influenza/ILI activity level by province and territory, Canada, Week 45

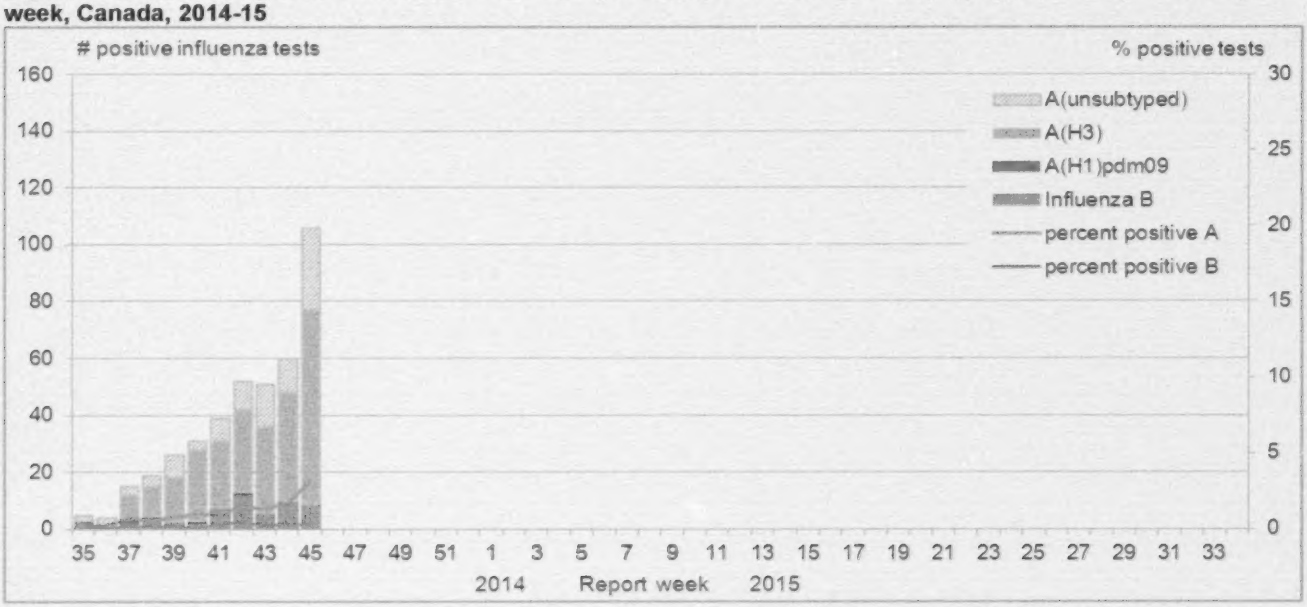


Note: Influenza/ILI activity levels, as represented on this map, are assigned and reported by Provincial and Territorial Ministries of Health, based on laboratory confirmations, sentinel ILI rates and reported outbreaks. Please refer to detailed definitions at the end of the report. Maps from previous weeks, including any retrospective updates, are available on the FluWatch website.

Influenza and Other Respiratory Virus Detections

The number of positive influenza tests increased sharply to 106 influenza detections (3.5% of tests) in week 45 (Figure 2). To date, 85% of influenza detections have been influenza A, and the vast majority of those subtyped have been A(H3) (Table 1). Among of cases of influenza A with reported age, the largest proportion was in adults ≥65 years of age (44%). Cases of influenza B have been reported among younger age-groups, with 28% being children <5 years of age (Table 2).

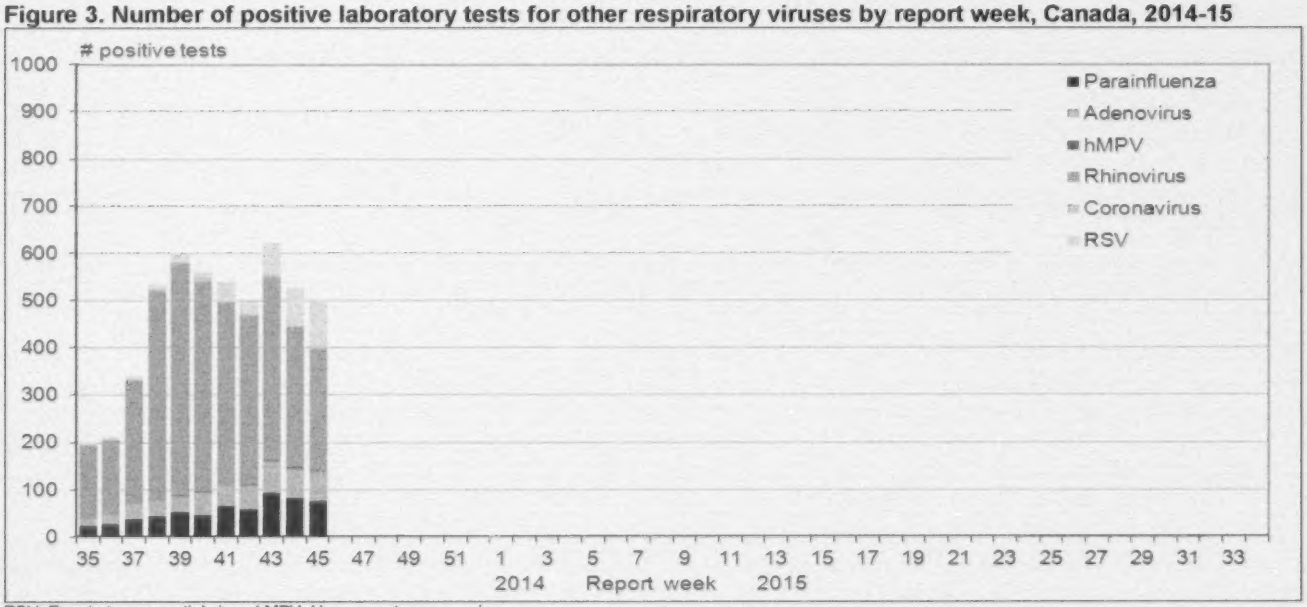
Figure 2. Number of positive influenza tests and percentage of tests positive, by type, subtype and report week, Canada, 2014-15



In week 45, detections of RSV, parainfluenza and adenovirus continued to follow an upward trend, in keeping with their usual pattern of seasonal circulation. Detections of rhinovirus peaked in week 39 and continue to follow a downward trend. More detections of rhinovirus were reported this year compared to previous seasons (Figure 3).

For more details, see the weekly Respiratory Virus Detections in Canada Report.

Figure 3. Number of positive laboratory tests for other respiratory viruses by report week, Canada, 2014-15



RSV: Respiratory syncytial virus; hMPV: Human metapneumovirus

Table 1. Weekly and cumulative numbers of positive influenza specimens by type, subtype and province, Canada, 2014-15

Reporting provinces[1]	Weekly (November 2 to 8, 2014)					Cumulative (August 24 to November 8, 2014)				
	Influenza A				B	Influenza A				B
	A Total	A(H1)pdm09	A(H3)	A(UnS)	B Total	A Total	A(H1)pdm09	A(H3)	A(UnS)	B Total
BC	11	0	9	2	0	79	2	74	3	8
AB	56	0	51	5	3	142	0	132	10	17
SK	1	0	0	1	3	5	0	1	4	8
MB	0	0	0	0	0	1	0	1	0	1
ON	12	0	8	4	1	61	2	38	21	14
QC	17	0	0	17	1	56	0	0	56	11
NB	0	0	0	0	0	0	0	0	0	0
NS	0	0	0	0	1	0	0	0	0	2
PE	0	0	0	0	0	2	0	1	1	0
NL	0	0	0	0	0	1	0	0	1	0
Canada	**97**	**0**	**68**	**29**	**9**	**347**	**4**	**247**	**96**	**61**
Percentage[2]	91.5%	0.0%	70.1%	29.9%	8.5%	85.0%	1.2%	71.2%	27.7%	15.0%

Table 2. Weekly and cumulative numbers of positive influenza specimens by type, subtype and age-group reported through case-based laboratory reporting[3], Canada, 2014-15

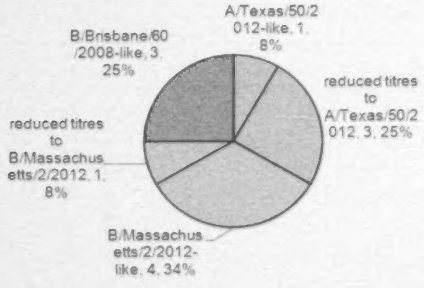
Age groups (years)	Weekly (November 2 to 8, 2014)					Cumulative (August 24 to November 8, 2014)						
	Influenza A				B	Influenza A				B	Influenza A and B	
	A Total	A(H1) pdm09	A(H3)	A (UnS)	Total	A Total	A(H1) pdm09	A(H3)	A (UnS)	Total	#	%
<5	6	0	4	2	1	61	3	19	39	21	82	16.6%
5-19	15	0	12	3	1	59	0	35	24	6	65	13.2%
20-44	16	0	12	4	1	58	0	22	36	4	62	12.6%
45-64	7	0	6	1	2	57	0	16	41	25	82	16.6%
65+	25	0	13	12	0	182	1	79	102	19	201	40.8%
Unknown	1	0	0	1	0	1	0	0	1	0	1	0.2%
Total	70	0	47	23	5	418	4	171	243	75	493	100.0%
Percentage[2]	93.3%	0.0%	67.1%	32.9%	6.7%	84.8%	1.0%	40.9%	58.1%	15.2%		

[1] Specimens from NT, YT, and NU are sent to reference laboratories in other provinces. Cumulative data includes updates to previous weeks.
[2] Percentage of tests positive for sub-types of influenza A are a percentage of all influenza A detections.
[3] Table 2 includes specimens for which demographic information was reported. These represent a subset of all positive influenza cases reported.
UnS: unsubtyped: The specimen was typed as influenza A, but no result for subtyping was available.

Influenza Strain Characterizations

During the 2014-2015 influenza season, the National Microbiology Laboratory (NML) has characterized 12 influenza viruses [four A(H3N2) and eight influenza B]. One influenza A virus was antigenically similar to A/Texas/50/2012, and four influenza B viruses were antigenically similar to the B/Massachusetts/2/2012 (Yamagata lineage) recommended by the WHO for the 2014-15 seasonal influenza vaccine. Three influenza A(H3N2) viruses and one influenza B virus showed reduced titers to antisera produced against strains recommended for the seasonal influenza vaccine (Figure 4).

Figure 4. Influenza strain characterizations, Canada, 2014-15, N = 12


A/Texas/50/2012-like, 1, 8%
reduced titres to A/Texas/50/2012, 3, 25%
B/Massachusetts/2/2012-like, 4, 34%
reduced titres to B/Massachusetts/2/2012, 1, 8%
B/Brisbane/60/2008-like, 3, 25%

The NML receives a proportion of the number of influenza positive specimens from provincial laboratories for strain characterization and antiviral resistance testing. Characterization data reflect the results of haemagglutination inhibition (HAI) testing compared to the reference influenza strains recommended by WHO.

The recommended components for the 2014-2015 northern hemisphere trivalent influenza vaccine include: an A/California/7/2009(H1N1)pdm09-like virus, an A/Texas/50/2012 (H3N2)-like virus, and a B/Massachusetts/2/2012-like virus (Yamagata lineage). For quadrivalent vaccines, the addition of a B/Brisbane/60/2008-like virus is recommended.

Antiviral Resistance

During the 2014-2015 influenza season, NML has tested 16 influenza viruses for resistance to oseltamivir and zanamivir and all were sensitive to both agents. The 17 influenza A(H3N2) viruses tested for amantadine resistance were all resistant (Table 3).

Table 3. Antiviral resistance by influenza virus type and subtype, Canada, 2014-15

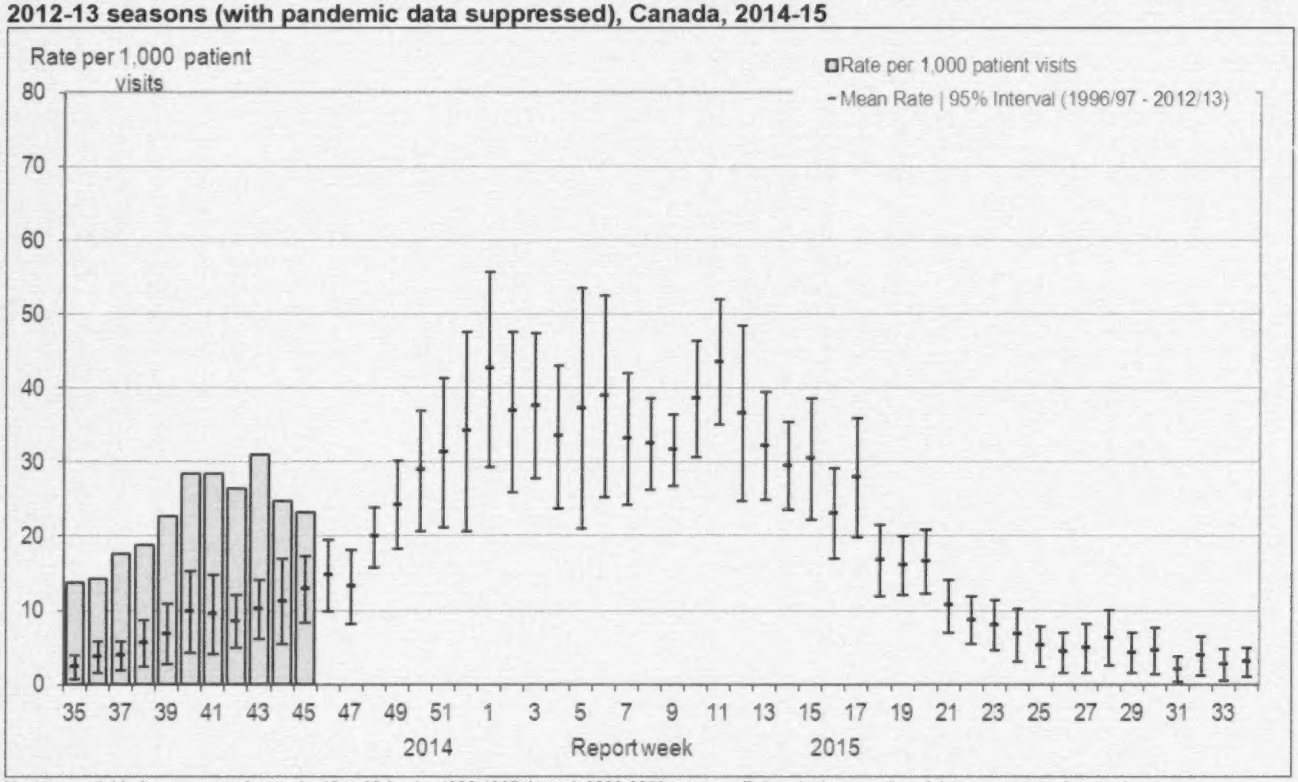
Virus type and subtype	Oseltamivir		Zanamivir		Amantadine	
	# tested	# resistant (%)	# tested	# resistant (%)	# tested	# resistant (%)
A (H3N2)	8	0	8	0	17	17 (100%)
A (H1N1)	0	0	0	0	0	0
B	8	0	8	0	NA[1]	NA[1]
TOTAL	16	0	16	0	17	17

[1] NA – not applicable

Influenza-like Illness Consultation Rate

The national influenza-like-illness (ILI) consultation rate decreased in week 45 to 23.1 consultations per 1,000 (Figure 5). The rates were highest among those <20 years of age in week 45. The rates since mid-June have been above the expected range for this time of year.

Figure 5. Influenza-like-illness (ILI) consultation rates by report week, compared to the 1996-97 through to 2012-13 seasons (with pandemic data suppressed), Canada, 2014-15

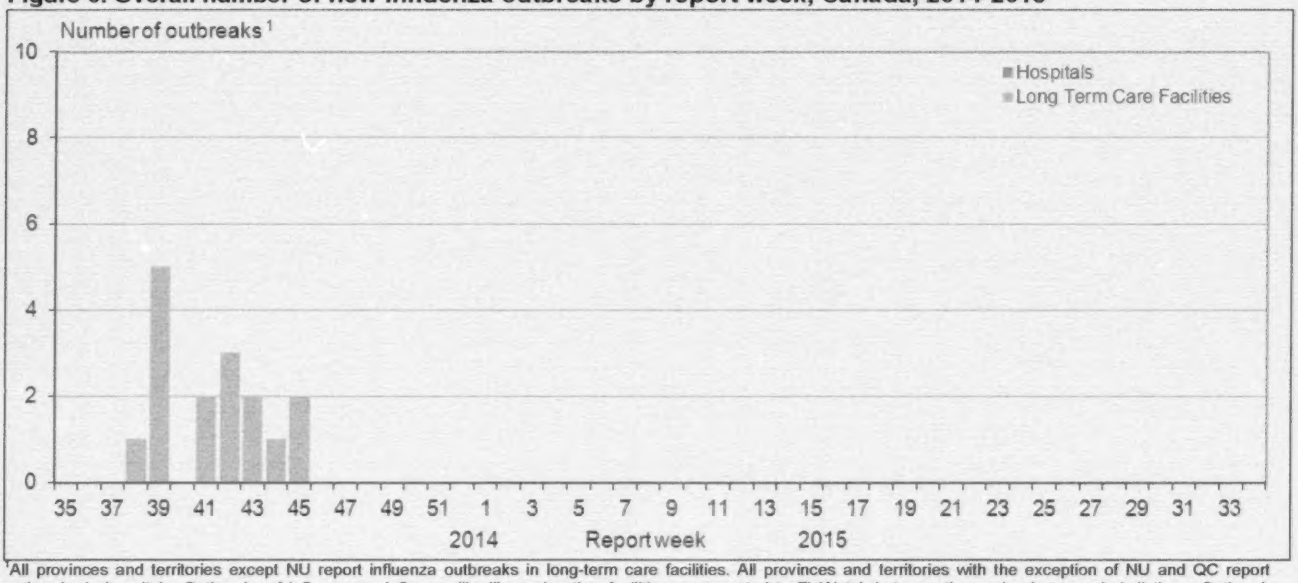


No data available for mean rate for weeks 19 to 39 for the 1996-1997 through 2002-2003 seasons. Delays in the reporting of data may cause data to change retrospectively. The calculation of the average ILI consultation rate over 17 seasons was aligned with influenza activity in each season. In BC, AB, and SK, data is compiled by a provincial sentinel surveillance program for reporting to FluWatch. Not all sentinel physicians report every week.

Influenza Outbreak Surveillance

In week 45, two new outbreaks of influenza A(H3N2) were reported in long-term care facilities (Figure 6).

Figure 6. Overall number of new influenza outbreaks by report week, Canada, 2014-2015

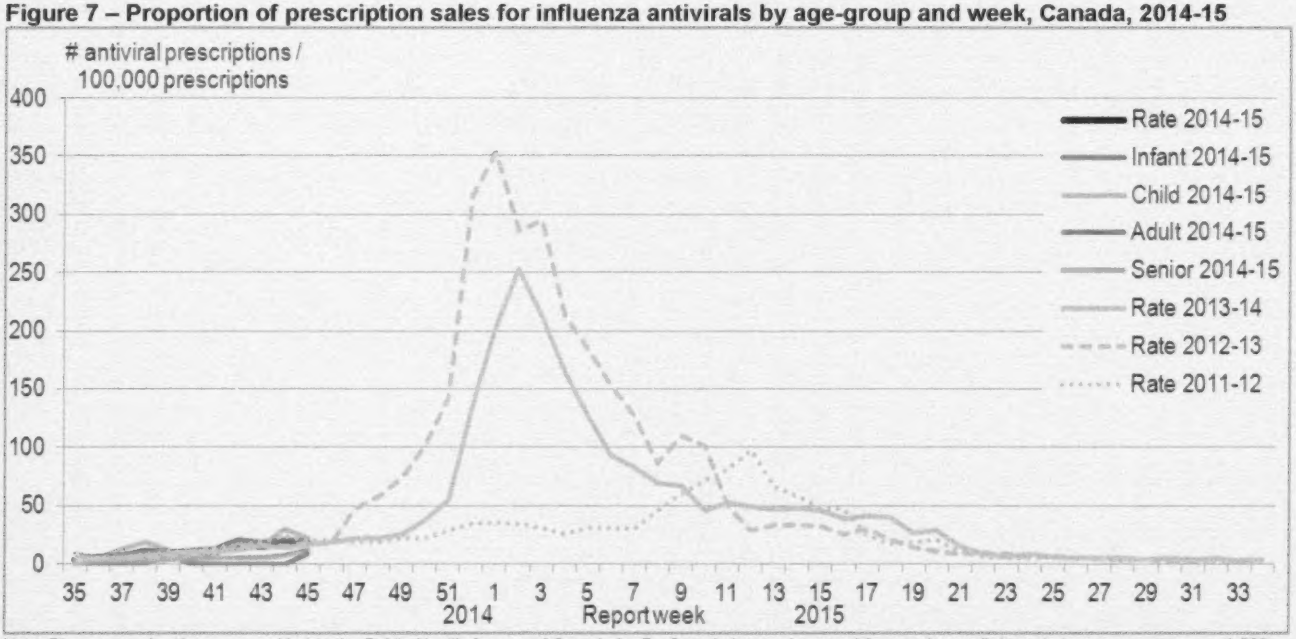


[1]All provinces and territories except NU report influenza outbreaks in long-term care facilities. All provinces and territories with the exception of NU and QC report outbreaks in hospitals. Outbreaks of influenza or influenza-like-illness in other facilities are reported to FluWatch but reporting varies between jurisdictions. Outbreak definitions are included at the end of the report.

Pharmacy Surveillance

During week 45, the proportion of prescriptions for antivirals was stable at 17.8 antiviral prescriptions per 100,000 total prescriptions, which is in keeping with previous seasons (Figure 7).

Figure 7 – Proportion of prescription sales for influenza antivirals by age-group and week, Canada, 2014-15



Note: Pharmacy sales data are provided to the Public Health Agency of Canada by Rx Canada Inc. and sourced from major retail drug chains representing over 2,500 stores nationwide (excluding Nunavut) in 85% of Health Regions. Data provided include the number of new antiviral prescriptions (for Tamiflu and Relenza) and the total number of new prescriptions dispensed by Province/Territory and age group. Age-groups: Infant: 0-2y, Child: 2-18y; Adult: 19-64y, Senior: ≥65y

Sentinel Hospital Influenza Surveillance

Paediatric Influenza Hospitalizations and Deaths (IMPACT)

In week 45, four new laboratory-confirmed influenza-associated paediatric (≤16 years of age) hospitalizations were reported by the Immunization Monitoring Program Active (IMPACT) network (Figure 8a). To date this season, 19 hospitalizations have been reported by the IMPACT network, 18 of which were cases of influenza A, and 13 of these were A(H3N2). The majority of the cases (58%) were in children <5 years of age (Table 4). To date, two cases were admitted to the ICU (Figure 9a).

Note: The number of hospitalizations reported through IMPACT represents a subset of all influenza-associated paediatric hospitalizations in Canada. Delays in the reporting of data may cause data to change retrospectively.

Adult Influenza Hospitalizations and Deaths (PCIRN)

Surveillance of laboratory-confirmed influenza-associated adult (≥16 years of age) hospitalizations by the PHAC/CIHR Influenza Research Network (PCIRN) Serious Outcomes Surveillance (SOS) network has not yet begun for the 2014-15 season (Figure 8b).

Note: The number of hospitalizations reported through PCIRN represents a subset of all influenza-associated adult hospitalizations in Canada. Delays in the reporting of data may cause data to change retrospectively.

Table 4 – Cumulative numbers of paediatric hospitalizations with influenza reported by the IMPACT network, Canada, 2014-15

Age groups	Cumulative (24 Aug. 2014 to 8 Nov. 2014)					
	Influenza A				B	Influenza A and B
	A Total	A(H1) pdm09	A(H3)	A (UnS)	Total	# (%)
0-5m	0	0	0	0	0	0 (0%)
6-23m	4	1	3	0	0	4 (21.1%)
2-4y	6	0	3	3	1	7 (36.8%)
5-9y	3	0	3	0	0	3 (15.8%)
10-16y	5	0	4	1	0	5 (26.3%)
Total	18	1	13	4	1	19
% [1]	94.7%	5.6%	72.2%	22.2%	5.3%	100.0%

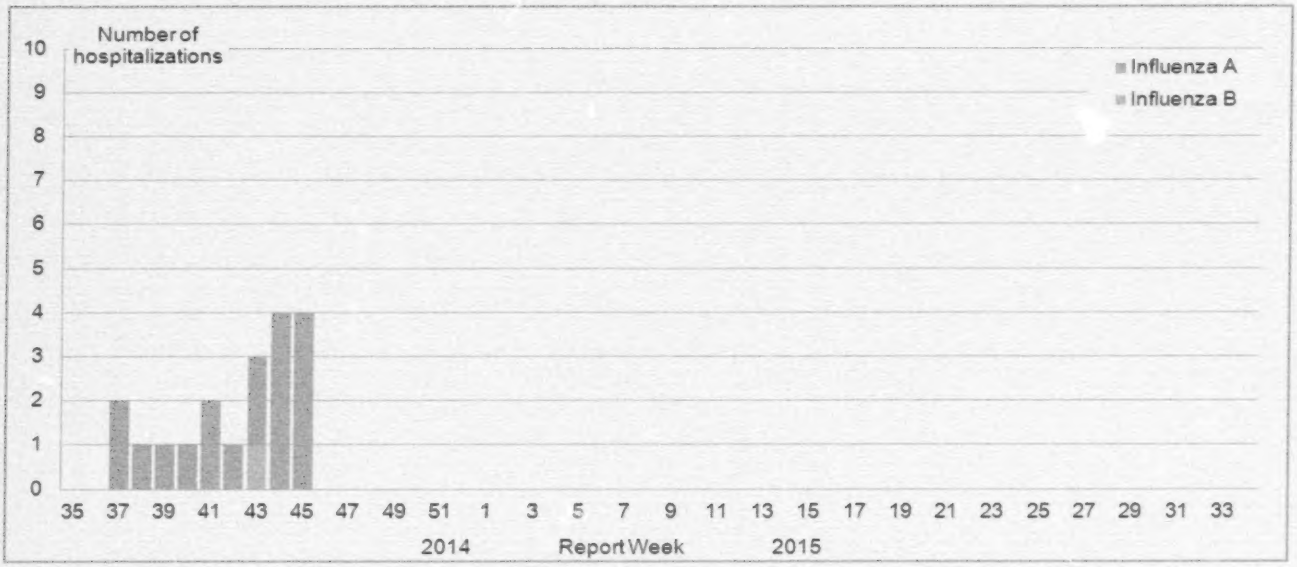
Table 5 – Cumulative numbers of adult hospitalizations with influenza reported by the PCIRN-SOS network, Canada, 2014-15

Age groups (years)	Cumulative (data for 2014-15 not yet available)					
	Influenza A				B	Influenza A and B
	A Total	A(H1) pdm09	A(H3)	A (UnS)	Total	# (%)
16-20						
20-44						
45-64						
65+						
Total						
%						

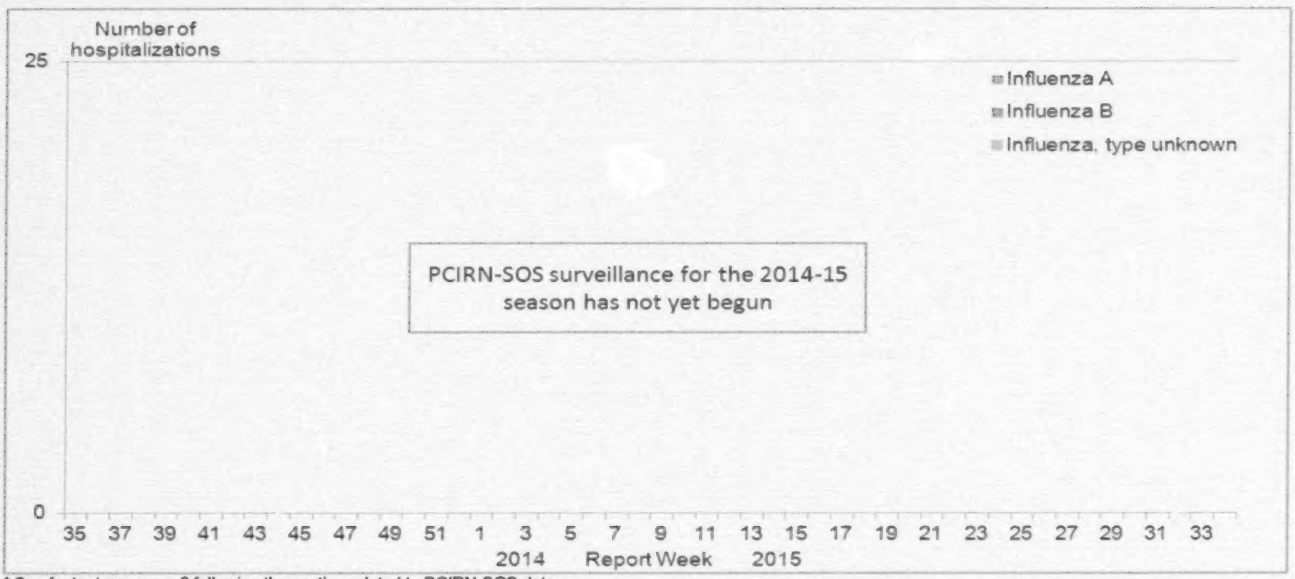
PCIRN-SOS surveillance for the 2014-15 season has not yet begun

[1] Percentage of tests positive for sub-types of influenza A are a percentage of all influenza A detections. UnS: unsubtyped: The specimen was typed as influenza A, but no result for subtyping was available.

Figure 8 – Number of cases of influenza reported by sentinel hospital networks, by week, Canada, 2014-15
A) Paediatric hospitalizations (≤16 years of age, IMPACT)



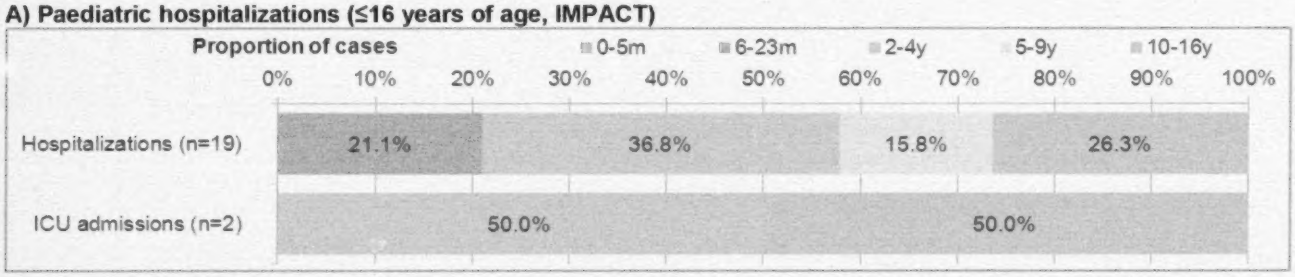
B) Adult hospitalizations (≥16 year of age, PCIRN-SOS)


Number of hospitalizations
25
0
Influenza A
Influenza B
Influenza, type unknown
PCIRN-SOS surveillance for the 2014-15 season has not yet begun
35 37 39 41 43 45 47 49 51 1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33
2014
Report Week
2015

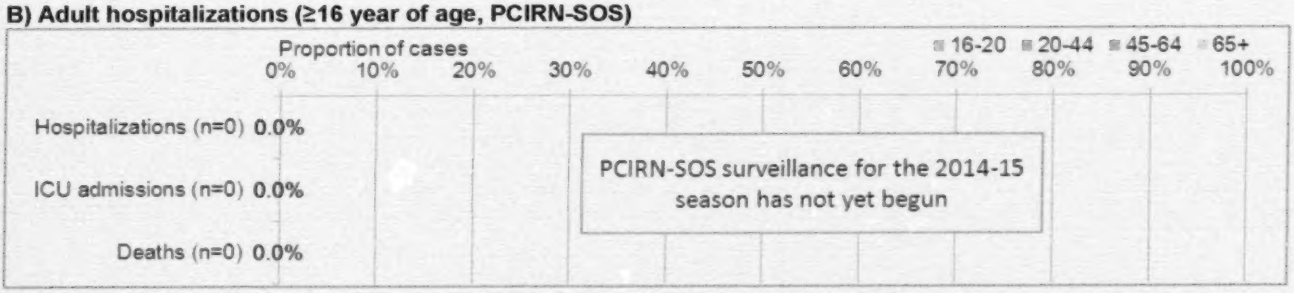
* See footnote on page 6 following the section related to PCIRN-SOS data.

Figure 9 – Percentage of hospitalizations, ICU admissions and deaths with influenza reported by age-group, Canada, 2014-15

A) Paediatric hospitalizations (≤16 years of age, IMPACT)



B) Adult hospitalizations (≥16 year of age, PCIRN-SOS)



Provincial/Territorial Influenza Hospitalizations and Deaths

Since the start of the 2014-15 season, 73 laboratory-confirmed influenza-associated hospitalizations have been reported from participating provinces and territories*; 69 were cases of influenza A, of which the majority were A(H3N2); 55% were patients ≥65 years of age (Table 6). No ICU admissions were reported. Eight deaths with influenza A have been reported: one child <5 years of age and seven adults ≥45 years of age. Detailed clinical information (e.g. underlying medical conditions) is not known for these cases.

* Note: Influenza-associated hospitalizations are not reported to PHAC by the following Provinces and Territory: BC, NU, QC, and NB. Only hospitalizations that require intensive medical care are reported by Saskatchewan. ICU admissions are not distinguished among hospital admissions reported from Ontario. Data may also include cases reported by the IMPACT and PCIRN networks. The number of new influenza-associated hospitalizations and deaths reported for the current week may include cases from Ontario that occurred in previous weeks, as a result of retrospective updates to the cumulative total. It is important to note that the hospitalization or death does not have to be attributable to influenza, a positive laboratory test is sufficient for reporting.

Table 6 – Cumulative number of hospitalizations with influenza reported by the participating provinces and territories, Canada, 2014-15

Age groups (years)	Cumulative (24 Aug. 2014 to 8 Nov. 2014)					
	Influenza A				B	Influenza A and B
	A Total	A(H1) pdm09	A(H3)	A (UnS)	Total	# (%)
0-4	9	1	6	2	0	9 (12%)
5-19	10	0	10	0	0	10 (14%)
20-44	3	1	1	1	2	5 (7%)
45-64	7	0	7	0	2	9 (12%)
65+	40	0	30	10	0	40 (55%)
Unknown	0	0	0	0	0	0 (0%)
Total	69	2	54	13	4	73
Percentage[1]	94.5%	2.9%	78.3%	18.8%	5.5%	100.0%

[1] Percentage of tests positive for sub-types of influenza A are a percentage of all influenza A detections.
UnS: unsubtyped: The specimen was typed as influenza A, but no result for subtyping was available.

See additional data on Reported Influenza Hospitalizations and Deaths in Canada: 2009-10 to 2014-15 on the Public Health Agency of Canada website.

Emerging Respiratory Pathogens

Human Avian Influenza
Influenza A(H7N9): Globally to November 13, 2014, the WHO has been informed of a total of 455 laboratory-confirmed human cases with avian influenza A(H7N9) virus, including 176 deaths.

Documents related to the public health risk of influenza A(H7N9), as well as guidance for health professionals and advice for the public is updated regularly on the following websites:
PHAC – Avian influenza A(H7N9)
WHO – Avian Influenza A(H7N9)

Middle East Respiratory Syndrome Coronavirus (MERS-CoV)
Globally, from September 2012 to November 13, 2014, the WHO has been informed of a total of 909 laboratory-confirmed cases of infection with MERS-CoV, including 331 deaths. All cases have either occurred in the Middle East or have had direct links to a primary case infected in the Middle East. The public health risk posed by MERS-CoV in Canada remains low (see the PHAC Assessment of Public Health Risk).

Documents related to the public health risk of MERS-CoV, as well as guidance for health professionals and advice for the public is updated regularly on the following websites:
PHAC – Middle East respiratory syndrome coronavirus (MERS-CoV)
WHO – Coronavirus infections

Enterovirus D68 (EV-D68)
Information related to enterovirus D68, as well as guidance for health professionals and advice for the public is updated regularly on the following website:
PHAC – Non-polio enterovirus

International Influenza Reports

World Health Organization influenza update

World Health Organization FluNet

WHO Influenza at the human-animal interface

Centers for Disease Control and Prevention seasonal influenza report

European Centre for Disease Prevention and Control - epidemiological data

South Africa Influenza surveillance report

New Zealand Public Health Surveillance

Australia Influenza Report

Pan-American Health Organization Influenza Situation Report

FluWatch Definitions for the 2014-2015 Season

Abbreviations: Newfoundland/Labrador (NL), Prince Edward Island (PE), New Brunswick (NB), Nova Scotia (NS), Quebec (QC), Ontario (ON), Manitoba (MB), Saskatchewan (SK), Alberta (AB), British Columbia (BC), Yukon (YT), Northwest Territories (NT), Nunavut (NU).

Influenza-like-illness (ILI): Acute onset of respiratory illness with fever and cough and with one or more of the following - sore throat, arthralgia, myalgia, or prostration which is likely due to influenza. In children under 5, gastrointestinal symptoms may also be present. In patients under 5 or 65 and older, fever may not be prominent.

ILI/Influenza outbreaks

Schools: Greater than 10% absenteeism (or absenteeism that is higher (e.g. >5-10%) than expected level as determined by school or public health authority) which is likely due to ILI. Note: it is recommended that ILI school outbreaks be laboratory confirmed at the beginning of influenza season as it may be the first indication of community transmission in an area.

Hospitals and residential institutions: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case. Institutional outbreaks should be reported within 24 hours of identification. Residential institutions include but not limited to long-term care facilities (LTCF) and prisons.

Workplace: Greater than 10% absenteeism on any day which is most likely due to ILI.

Other settings: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case; i.e. closed communities.

Note that reporting of outbreaks of influenza/ILI from different types of facilities differs between jurisdictions.

Influenza/ILI Activity Levels

1 = No activity: no laboratory-confirmed influenza detections in the reporting week, however, sporadically occurring ILI may be reported

2 = Sporadic: sporadically occurring ILI and lab confirmed influenza detection(s) with **no outbreaks** detected within the influenza surveillance region†

3 = Localized: (1) evidence of increased ILI* ;
(2) lab confirmed influenza detection(s);
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring in **less than 50% of the influenza surveillance region**†

4 = Widespread: (1) evidence of increased ILI*;
(2) lab confirmed influenza detection(s);
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring **in greater than or equal to 50% of the influenza surveillance region**†

Note: ILI data may be reported through sentinel physicians, emergency room visits or health line telephone calls.

** More than just sporadic as determined by the provincial/territorial epidemiologist.*

† Influenza surveillance regions within the province or territory as defined by the provincial/territorial epidemiologist.

We would like to thank all the Fluwatch surveillance partners who are participating in this year's influenza surveillance program.

This report is available on the Public Health Agency website at the following address: http://www.phac-aspc.gc.ca/fluwatch/index.html.

Ce rapport est disponible dans les deux langues officielles.